ATCO NEWSLETTER

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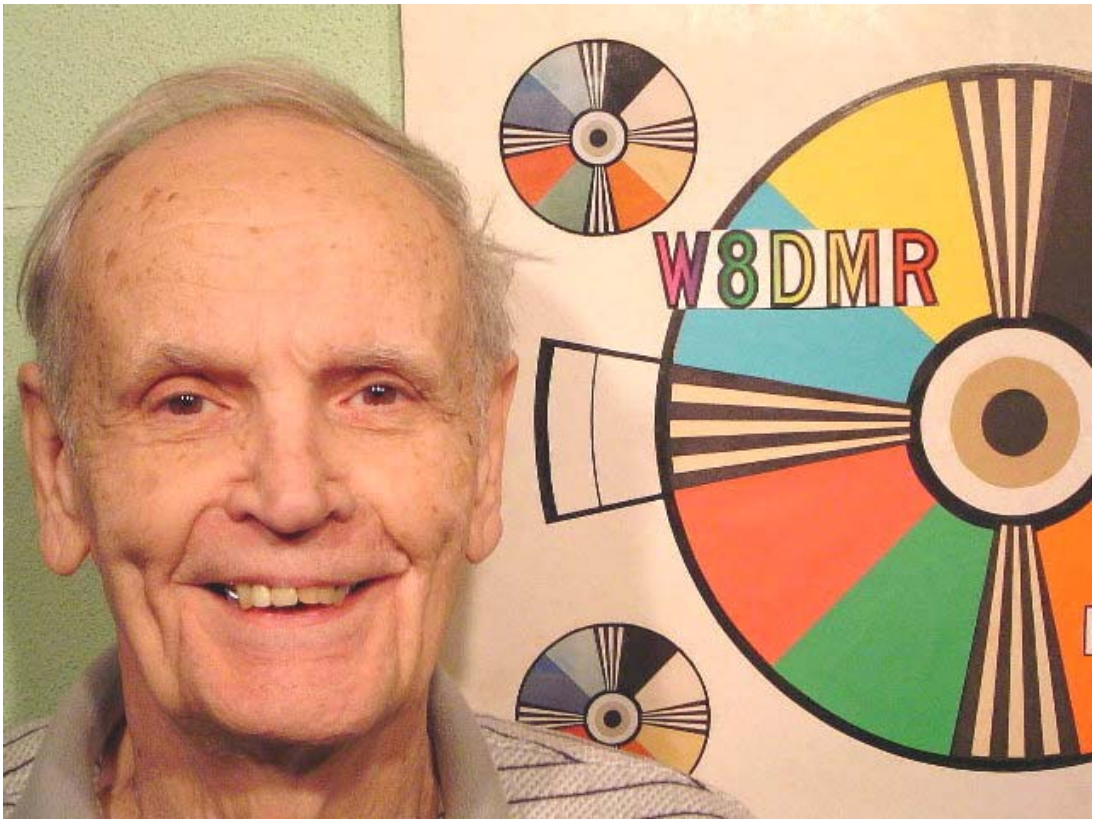
The ATCO newsletter is the official publication of a group of amateur television operators known as AMATEUR TELEVISION IN CENTRAL OHIO Group Inc." and is published quarterly (January, April, July, and October)

ATCO HAM IN THE SPOTLIGHT

Guess who I caught in the camera lens this time? Well, it's Mr. ATV himself, Bill, W8DMR. Bill started Ham radio in 1948 and graduated to ATV in 1949. That's before I got started. However, I was privileged to be able to send him ATV pictures from my Toledo, Ohio QTH in 1966. I still have his QSL card to prove it.

Bill has been, and continues to be, a major contributor to the success of ATV, mainly by his aggressive mentoring of the young crowd. I can't even guess the number of people he has introduced to Ham radio (and ATV). His excellent technical and people skills have enabled even the most novice of us understand the basic principals of electronics through example.



Thanks for helping us along, Bill. You are appreciated

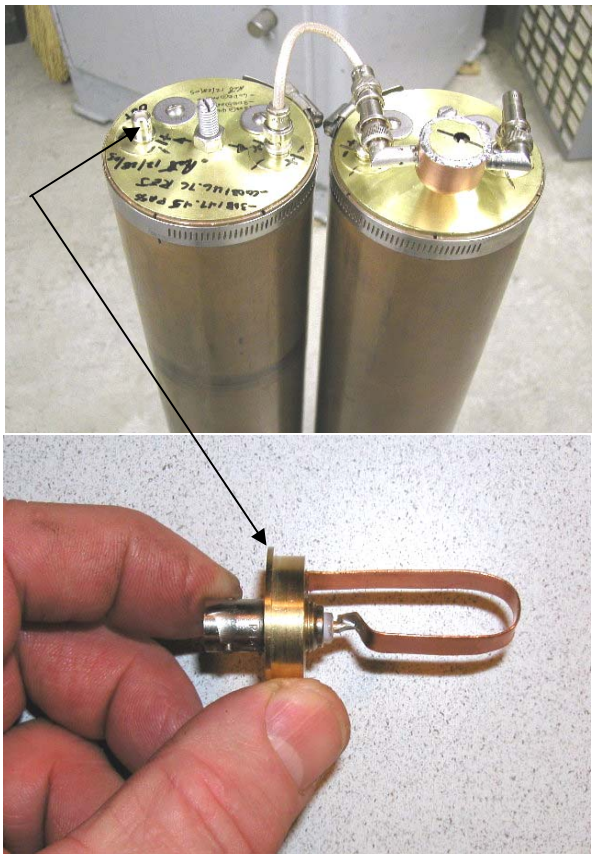
A bio is on in internal page.

ACTIVITIES ... from my "workbench"

Well, here I am again at the computer trying to figure out what I actually accomplished since we last chatted. It's especially difficult because, at this time, my wife is asking me to come down and make popcorn. What will it be…Newsletter or popcorn, popcorn or Newsletter…..Hmmm…… OK, I'm back now full of popcorn and beer and ready to type some more.

As many of you know, the 146.76 repeater output causes us problems. First, the 146.76 output de-senses the 147.45 input to the point that communication on 147.45 is difficult. The 146.76 signal rides in on ours and causes beat notes and sometimes just blanks ours out. Second, I found that the 146.76 signal 3rd harmonic, which is about 442 MHz and in the 439 MHz passband, causes herringbone patterns in the received picture. Fortunately, the 146.76 repeater is not on the air frequently so the interference, until lately, has been only an occasional menace. However, I decided to tackle the problem and solve it.

We had a dual stage cavity filter in the 147.45 receive line but somehow the interference still rode through. A redesign of the cavity to add rotatable coupling loops allowed me to selectively reduce the coupling thereby sharpening the bandpass skirts. Reducing the coupling sharpens the skirts until a critical point is reached where the skirts do not get sharper but the passband attenuation starts to rise. I adjusted both cavities to that critical point. Next, I created a notch in the lower portion of the passband by adding a capacitor from input to output. By adjusting the capacitance (about 5-10 pf was all that was needed), I was able to adjust the placement of the notch. After I was finished, I was able to achieve a 3 dB 147.45 passband loss through both cavities while achieving a 50 dB notch loss at 146.76. That fixed the de-sense problem. A view of the completed cavity design is shown at the right. The right cavity has the notch filter mounted on it with BNC "T" fittings.



The 146.76 3rd harmonic interference was solved with the insertion of a low pass filter that I made and inserted into the 146.76 transmission line at their repeater with the help of W8RXX. (Thanks John). I think the problem is now solved. Let me know if anyone still sees or hears interference.

The next job was to repackage the 439 and 1280 analog receivers and add a 1280 digital receiver. A single 1.5 inch high rack chassis now holds all of these. I've been wanting to replace the old 439 receiver (a P.C. Electronics unit) for quite some time now because of the mounting location in the cabinet. It seems that the only place it would operate satisfactorilly without interference from the nearby channel 10 TV transmitter was dangling from its power cord toward the bottom of the cabinet. I never liked that but didn't want to move it because it worked so well there. The reworked receiver chassis has solved the problem and the cabinet interior looks much better. It has a way to go, but for now, it's a great improvement.

The digital receiver I added allows us to receive digital ATV in addition to just transmitting it so a full repeat of the digital ATV signals is possible. The digital receiver video output is fed into the digital transmitter second channel so that someone transmitting digital ATV on 1280 can be seen on the repeater 1260 digital output. Let me see now…does that give us the first full digital ATV repeater in the USA? Wow!!!

One last thing. Roger, WB8DZW, suggested that we create a place on our web page where members can post items for sale. Bob, N8NT, is working on the software to do just that. Each member will be able to post items and pictures in their ATCO personal page. When submitted, it will be placed on the ATCO homepage for all to see. We'll let you know when it's complete.

OK, that's all for now. I'm working on a video identifier for the repeater output to identify the received band that is seen.I hope to have it complete by next time. We'll see….
…WA8RMC

PIZZA, PIZZA, PIZZA! Yet another pizza party.

The ATCO bunch are just a bunch of party animals. Or, is it the lure of free pizza? In either case, we made it to another pizza party before the Christmas holiday season totally wore us down. We met at Donato's in the Easton shopping center again as we have a number of times in the past. The pizza was good and we had a super turnout, I think I counted 30 people, but the service was much to be desired this time. Despite that, we all had a good time.

Even Roger, WB8DZW, showed his stamina by almost single handedly downing a small anchovy pizza. His picture at the right of the event is a little fuzzy because I moved the camera but I believe you get the picture, OK?

Yeesh… salty anchovies, why would they dare ruin a good pizza that way?
…WA8RMC

BILL PARKER, W8DMR, ATV HOBBYIST AND EXPERIMENTER

Licensed W8DMR in late 1948, he constructed his first black & white TV camera in 1949, using a Type RCA 5527 tube. He met John Hull, W8RRJ at Thompson Radio, who also had recently purchased the same image tube. Without almost direct sunlight on a subject, the video picture produced was very low in contrast, noisy and limited in detail. The 5527 image tube was the only one available to amateurs.

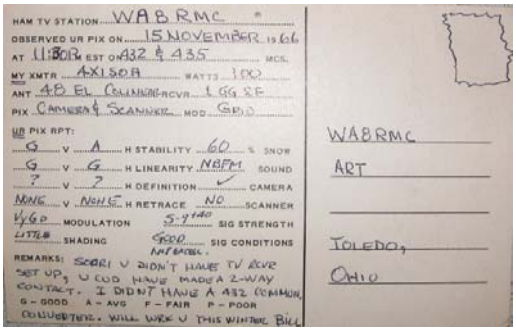
During 1955 he constructed his second B&W camera using the RCA 6198 vidicon. The image tube had such a long storage persistence that moving objects in a scene had smear or tail following. A bright sunlit image often easily became permanently burned into the photo sensitive target surface. The camera was built from a B&W photograph of a commercial camera produced by the Dage Television Co. Observing the small resistors in a B&W photo and trying determine their ohmic value without the color bands showing nearly caused him to not complete the camera. Schematic diagrams for cameras were proprietary then.

He transmitted his first one-way television image to Dick Gibson, W8TYY in 1956 who lived a mere 2-3 miles away. The received picture was snowy, without sound, and limited resolution. Soon both he and W8TYY constructed flying spot scanners (FSS) to generate video images from transparencies.

Using a single 6J6 miniature dual triode in a free running oscillator, late evening in 1960 on 432 MHz., Don Miller, W9NTP saw Bill's picture in Waldron (60 miles due south of Indianapolis, Ind.). His P-report was a grainy P-1 at best. Bill also saw Don's video picture in Columbus. That remained Bill's longest 2-way video exchanged for several years.

During another band opening, Bunky Potts, K4EJQ near Johnson City, Tennessee and Bill exchanged video pictures. Don's, Bunky's and Bill's video DX pictures were published in issues of QST. VCRs weren't common place then.

During 1966 Art, WA8RMC, in Toledo sent Bill B/W ATV pictures and received this QSL card from Bill.



Bill designed his own color test pattern and QSL card using a thumb tack and string to draw the outer large circles. He cut wedges of color from his son's school construction paper and pasted those to the 20 x 15 inch test pattern. Drawing one resolution wedge by hand, he photo-copied three more and added those to his homebrew test pattern. Personal computers hadn't been invented yet!

Several of the local ATVers, W8RRJ, W8TYY, W8FRQ, and others were always ready and eager upon short notice to give a less-than-rehearsed presentation to various amateur radio groups throughout Ohio strictly in the hope of encouraging just one more additional ham to transmit & receive ATV.

Bill believes he has never met a radio amateur he didn't like. He does however admit, he likes some radio hams more than others, especially if they transmit ATV. One of his most pleasurable activities has been the watching the hobby grow in Central Ohio, the forming of the ATCO Group, the establishment of a quarterly ATV Newsletter and continued operation of the ATCO repeater.

Bill asks quietly, "Who would have ever thought radio amateurs in central Ohio would be transmitting ATV pictures, in color, employing frequency modulation (FM), over GigaHertz frequencies, from omni directional antennas, 650 feet about street level? Not in my lifetime. And now it is Digital ATV. The video bulletin board maintained by Dale, KB8CJW, 24 & 7, just a few years ago was an unheard of accomplishment. What a delight to witness so such wonderful growth in a wonderful hobby!"

When Tom O'Hara, W6ORG retired from presenting ATV Forums as part of the Hamvention, he asked Bill if he would care to moderate the FSATV forum. After a microsecond of thought, Bill replied, "Tom, I thought you'd never ask!" Bill says, "The forums have been successful due to ATVers everywhere who have volunteered to participate in the world's greatest hobby, ATV."

Bill is watching with great anticipation to when the 2005 Dayton-Columbus ATV link becomes fully operational, to enjoy with even greater ATV experiences, not to mention future ATV balloon & rocket launches. He also knows, "....the end to this hobby doesn't exist..." The idea of sending pictures without wires from one place to another still fascinates Bill, just as much as did it many years ago when he first read about it as a teenager while attending a science class in Grade School.
…Bio Author Unknown

WHY UNLICENSED USE OF THE WHITE SPACE IN THE TV BANDS WILL NOT CAUSE INTERFERENCE TO DTV VIEWERS

On May 13, 2004, the Federal Communications Commission approved a Notice of Proposed Rulemaking (NPRM) proposing to allow a new generation of wireless devices to utilize vacant television channel frequencies in each market. This so-called TV band "white space" consists of frequencies that are allocated for television broadcasting but are not actually in use in a given area.[1] The FCC's proposed rulemaking is pending but currently inactive. The proposed rules are intended to make way for technologies that utilize unlicensed spectrum, such as Wi-Fi, to utilize the prime TV band spectrum to offer wireless broadband services. Wi-Fi technology has become very popular at higher frequencies, and has had a positive impact on the growth of broadband services. However, the bands used for Wi-Fi do not have appropriate radio propagation characteristics to serve low population densities. Lower frequency spectrum, such as that used for TV broadcasting, is capable of traveling longer distances at a given power level, and can better penetrate obstacles such as buildings and trees.

The FCC's proposal would promote both spectrum efficiency and wireless broadband deployment. The TV band has been called a "vast wasteland" of underutilized spectrum. Even after the completion of the DTV transition – and the reallocation of TV channels 52-to-69 – an average of only seven full-power DTV stations will be operating on channels 2-to-51 in the nation's 210 local TV markets. Only a fraction of the 294 MHz of prime spectrum allocated to DTV services will actually be utilized in most markets. Thus, the proposed use of "white space" TV channels could have a particularly great impact on the growth of information services in rural areas, where such empty channels are readily available. In urban areas, where less "white space" is available, this spectrum would also be useful because of the great demand for wireless broadband services and because of the ability of the TV band spectrum to penetrate buildings and objects within buildings better than the higher bands.

The FCC was clear in this NPRM that any devices certified to operate in the TV white spaces would be required to use new *"smart radio" technology* that would not interfere with television reception. Nevertheless, the National Association of Broadcasters (NAB) and other broadcast industry representatives, in comments filed at the FCC and in communications with Congress, have objected to the FCC's proposal, claiming that unlicensed devices operating on vacant channels in the TV band would cause harmful interference to television broadcasts and other uses of licensed TV band channels.

This Issue Brief responds to the broadcast industry's allegations, addressing each of the industry's concerns about interference. The paper concludes that interference-free unlicensed use of the white space *is* practical with today's technology. While some of the issues raised here are novel, the FCC as an "expert agency" should be able to handle them as it handles other cutting-edge spectrum problems. Indeed, the FCC is required by statute to avoid harmful interference with licensed TV broadcasts – and its NPRM describes several different ways to protect the dwindling number of over-the-air TV viewers from interference, as described below.

not permitted to use the TV band spectrum. It appears that wireless microphone vendors have been selling their products to customers who cannot lawfully use them – and some now want to rely on those unlawful sales to prevent use of the spectrum for wireless broadband. Mass-market wireless microphones are capable of operating on the adjacent low-power Private Land Mobile Radio band, in which theaters, churches and schools *are* eligible to obtain licenses. Instead of using the TV bands, these users should use the lawful adjacent band. The equipment vendors who created this confusion should be required to help clear it up.

…Michael J. Marcus, Paul Kolodzy and Andrew Lippman*

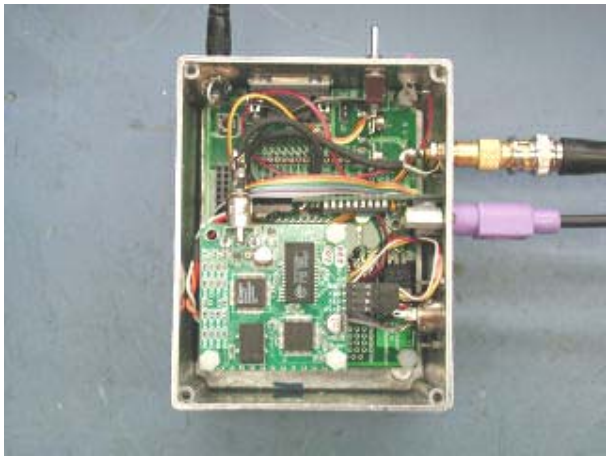
* *Michael Marcus, former Associate Chief for Technology at the FCC's Office of Engineering and Technology, retired in March 2004 from the Commission after almost 25 years there in senior spectrum policy positions. He is now director of Marcus Spectrum Solutions (www.marcus-spectrum.com), a radio technology and spectrum policy consulting firm. Paul Kolodzy, former Chair of the FCC's Spectrum Policy Task Force and former Director of the Center for Wireless Network Security at Stevens Institute of Technology, is now a communications consultant. Andrew Lippman was the founding Associate Director of the MIT Media Lab from 1983 to 2001, and codirects the Institute-wide Communications Futures Program. He also directs the Viral Radio Program, which explores ways to use mesh architectures to make energy and spectrum-efficient scalable radio communications systems.* *Issue Brief # 17 October 2005*

SELF-CONTAINED MICROCONTROLLER BASED CUSTOM ATV ID SCREEN GENERATOR

Reuben Meeks (W8GUC) of Vandalia Ohio wanted an easy way to generate ID screens for his ATV station. He wanted to be able to generate screens with custom information but didn't want to use a computer. He was able to use an *ez*VID 2.0 and an *ez*KEY to solve his problem. (The ezVID 2.0 and ezKEY modules are available from www.Multilabs.net group in Los Angeles. See http://www.multilabs.net/Products.html)

The solution turned out to be a small box (seen closely below) that can be used anywhere: at home, a remote relay site, or another ATV station location without lugging a computer around. Not only that but the information on the screen can be changed at any time so new broadcast messages and/or call signs can be updated on the fly.

Here is how it works:
Inside the box is a micro controller which is connected to an *ez*VID 2.0 and an *ez*KEY. When the micro controller is first run it instructs the *ez*VID 2.0 to clear the screen. The micro controller, using the *ez*VID 2.0, then prompts the user to enter their call sign via a prompt and flashing cursor. The program can take call signs of any standard size (4,5,6, or 7). The micro controller then monitors the *ez*KEY to relevant keystrokes. The user can enter their call sign using the letter or number keys of the keyboard. If a mistake is made the user can use the "backspace" key to go back and correct the mistake. When the call sign has been typed in and the "enter" key is pressed the data is stored in non-volatile memory. The program will next prompt the user to



enter data for information line 1. This line can be any information that the user wants and can be up to 13 characters long or just hit "enter" if it is to be left blank. When "enter" is detected the information is stored in non-volatile memory and then the user is prompted to enter data for information line 2. Just like the first line it can be up to 13 characters in length or just left blank. When "enter" is pressed the data is stored in non-volatile memory, the screen is cleared, and the ID screen is drawn using the information the user typed in.

Once the data has been entered the program will remember the data since it is non-volatile memory. That way, if power is lost the data does not have to be re-entered and no user intervention is needed. This is especially useful in remote relay stations which are not typically manned. When power is restored the program will see that data has already been entered and it will skip the prompting portion and will draw the screen with the current data.

If the user needs to change the data they need only to hit the "Esc" key on the keyboard from the main ID screen. The screen will be cleared and the user will be prompted for new data.

A view of the ezVID 2.0 module is shown at the right. It is available from Multilabs for about $65.00.

…Reuben Meeks W8GUC

APRIL 7, 2009…THE OFFICIAL END OF ANALOG TV?

As you may have read in the TV Technology News Bytes article Senate Panel Approves April 7, 2009 Analog Shutoff, we are moving closer to having a firm shut off date for analog TV. However, before the shutdown can become law, it has to be approved by the House of Representatives, which still has Dec. 31, 2008 as the shut off date in its latest plan.

The Digital Television Transition Act of 2005, which is currently in the "Committee Print" stage, changes the transition date in the Communications Act from Dec. 31, 2006 to Dec. 31, 2008. It also eliminates the requirement that 85 percent of the television households in a market have at least one television with access to digital broadcast channels before the transition can be completed. It also requires the FCC "not to adopt any further changes between July 31, 2007 and Jan. 1, 2009 to the channels assigned to full-power broadcast television stations for the provision of digital television service unless doing so is necessary for reasons of public safety or necessary to prevent a delay in the end of broadcasting by full-power stations in the analog television service."

The DTV Transition Act of 2005 includes a digital-to-analog converter box program and states that funds obtained from the auction of TV spectrum shall be used "to implement and administer a program through which households in the United States may obtain, upon request, up to two coupons that can be applied toward the purchase of digital-to-analog converter boxes, subject to the restrictions in this section and the regulations created thereunder..." The coupons would expire March 31, 2009. The value of each coupon is set at $40, and the total cost of the program cannot exceed $990,000,000.

The Act also requires manufacturers to include a warning label on any set shipped with only an analog tuner 180 days after the Act is enacted. The label must state: "This television has only an analog broadcast tuner. After Dec. 31, 2008, television broadcasters will broadcast only in digital format. You will then need to connect this television to a digital-to-analog converter box or cable or satellite service if you wish to receive broadcast programming..." The warning label adds that the TV will continue to work with VCRs, digital video recorders, DVD players and video game systems. Broadcasters will also be required to broadcast specific announcements concerning the analog TV shutdown and listing the options viewers can take to continue to receive broadcast programming, including possible eligibility for up to two coupons for the purchase of two converter boxes.

Under the DTV Transition Act of 2005, the FCC would be required to modify Part 15 of its rules to require that all TV sets sized 13 inches or larger shipped after March 1, 2007 include DTV tuners. Cable operators would be allowed to downconvert primary DTV broadcast signals to analog under some conditions until Jan. 1, 2014. See the Digital Television Transition Act of 2005 for details on this and other rules related to the shutdown of analog TV.

Last week I asked if any readers really cared if they got their DTV free off-air or through cable or satellite. I wasn't surprised that all the comments wanted free off-air TV to stay around. While most responses strongly supported off-air TV, citing the higher quality of broadcast HDTV signals compared with cable, more broadcast DTV channels than cable (multicast and adjacent market stations), the greater reliability of broadcast TV in heavy storms and natural disasters compared to DBS/cable and, of course, the much lower cost of installing an antenna and rotor compared with the monthly bill for satellite or cable reception. Some of the people responding didn't really care if they got their local DTV station off-air or by cable or satellite, but felt it was important to have free off-air DTV available as an option to keep cable and satellite prices in check. One reader said "if 'all' the broadcast channels were available via Dish Network in HDTV or DTV with all the multicast channels I am now getting, then the answer would be 'Don't care'--unless the DBS prices go up too high."

In response to my question about availability of DTV set-top boxes, most readers responding bought their boxes online and didn't bother with local retailers. A reader was pleased to see stickers on sets with DTV tuners at his local Circuit City store reminding shoppers to ask about an "HDTV antenna." Another mentioned the USDTV boxes available at Wal-Mart, which I've mentioned before. I've seen them online, but have not found one in the stores I've visited. One reader will miss his 1987 Sony Watchman, which he carries on his 3.5 hour round trip train commute. He said, "I don't use it very often, but I have it with me every day. Having seen the World Trade Center on fire on 9/11 from the train window, I never commuted again without having AM/FM/Short Wave/TV reception with me at all times--a small sacrifice of the space in my brief case, and one I intend to continue to make after the transition." If a handheld DTV isn't available by 2009, perhaps some of the nifty miniature USB 2.0 tuners we've been seeing for DVB-T will be available for ATSC, allowing easy DTV reception on a notebook computer.

THE W3KYH ATV REPEATER IS ON THE AIR

Recently I was asked to investigate the possibility of a new ATV repeater on the air in the Pittsburgh, Pa area. I investigated and the details below are what I found. We must look for them during future band openings. WA8RMC.

The SCARC ATV repeater has actually been on the air since the late 80's. It was originally built by Frank W3QNI, who is now unfortunately an SK. I made some improvements and took care of it for a long time after Frank passed away, but then got busy with other things. Clyde WA3WPE was the last to have his hands in it, but again, he passed away last summer. I recently became active again at W3KWH, and have plans to get the repeater back up to its full potential (mostly we need a new exciter). Unfortunately, most of the guys who were really active on ATV have passed away, so activity in the Pittsburgh area has gone down the tubes.

The input is 439.25 MHz; output 426.25 MHz, both horizontally polarized. Current output is around 35W with video, but the system is capable of 100W at 100% duty cycle. I know on a really really good day, Columbus is possible. The club site is in EN90xj, at around 1250' ASL, with good views all around. I'll be glad to answer any questions you might have.
…73 and Happy new year, Dave AA3EE

DTV PLAN INCLUDES SET-TOP SUBSIDY

WASHINGTON — The House voted Sunday (Dec. 18 2005) to establish a 2009 deadline for ending U.S. analog broadcasting and the start of all-digital TV services.

The Feb. 18, 2009, transition date was part of a massive budget reconciliation bill approved over the weekend in the House. The bill passed by a vote of 216-206.

The House bill authorizes the National Telecommunications and Information Administration to launch a "digital-to-analog converter box program" to allow viewers without DTV receivers to continue receiving broadcast signals. The bill allocates up to $990 million for the program, which would allow U.S. households to obtain up to two, $40 converter-box coupons.

The measure was initially approved by the House Energy and Commerce Committee. Panel Chairman Joe Barton, R-Texas, said in a statement that “the DTV legislation brings needed certainty to allow consumers, broadcasters, cable and satellite operators, manufacturers, retailers, and government to prepare for the end of the transition."

The Senate voted last month to set April 7, 2009, as the deadline for U.S. broadcasters to switch to digital broadcasts. Lawmakers want to use unused analog TV spectrum for broadband wireless and public-safety applications.

Spectrum auctions associated with the reclaimed spectrum are expected to generate an estimated $10 billion in revenues.
The bill also includes up to $1 billion in grants to help public-safety agencies obtain and deploy interoperable communications.
…George Leopold EE Times (12/19/05)

OFF ARRL SITE

I know of areas around the Canadian border & some "silent areas" at listening areas but this? - This is the 1st I ever saw this.

Revised restrictions on 70 cm bear repeating (Nov 8, 2005) -- In 2004, a revised Footnote US7 in Part 2.106 of the Code of Federal Regulations went info effect, further expanding the 50 W maximum output power restriction in place for the 420-450 MHz band in the US Southwest. (The applicable Part 97 Amateur Service rule is §97.303, which incorporates §2.106 by reference.) "In talking to people at hamfests and other Amateur Radio meetings, I've found that very few people are aware of this rule," says Bill Kauffman, W5YEJ, of the New Mexico Frequency Coordinating Committee. While the previous version of §2.106(a), essentially covered the White Sands Missile Range area of New Mexico, language effective as of January 2004 expanded it to include all of New Mexico and Texas lying west of 104° W. The 70 cm band is a shared allocation in the US, and federal government users are primary. Amateur Radio, as a secondary occupant, may not cause interference to primary government stations and must tolerate any interference from government stations. Kauffman explains that the FCC acted at the request of the National Telecommunications and Information Administration (NTIA) to protect sensitive receivers at various fixed and mobile locations on military bases. The 50 W restrictions continues to apply to all of Arizona and Florida as well as parts of several other states, including California, Nevada, Massachusetts, Alaska, North Dakota, Alabama, Georgia and South Carolina. Exceptions to the power limit must be expressly authorized by the FCC after mutual agreement, on a case-by-case basis, between the FCC District Director in the applicable district and the Military Area Frequency Coordinator at the applicable military base.
… Dale WA8KQQ 11-9-05

HAMVENTION "BETTER COMMUNICATION A KEY 2006 GOAL"

Well in advance of the 55th Dayton Hamvention next spring, event organizers report they're implementing strategies to improve communication and provide more and better information about the show. Part of the plan is a complete makeover of the Dayton Hamvention Web site <http://www.hamvention.org>, still a work in progress. Hamvention 2006 takes place May 19-21 at Hara Arena in Trotwood, Ohio. Dayton Hamvention volunteers this past spring asked many vendors and visitors alike what they could do to improve the world's largest Amateur Radio gathering, and "better communication" was the most common response.

"People told us what they wanted, and we are going to do our best to deliver," says Dayton Hamvention 2006 General Chairman Jim Nies, WX8F. "We have set several goals for this year, and one of the most important is to respond to requests more quickly than we did during the 2005 show." Nies took over the reins from Gary Des Combes, N8EMO, who headed up the 2004 and 2005 events and brought back an all-volunteer staff. The Dayton Amateur Radio Association (DARA) has sponsored Hamvention since the early 1950s.

The goal of the 2006 Dayton Hamvention staff will be to at least acknowledge all requests within 24 hours and, if possible, provide the information or assistance needed within the same time frame, Nies said. "I know that we won't be able to answer every question or deal with every problem immediately, but we will definitely make every effort to do it as soon as possible".

Hamvention organizers say that while feedback from those who attended the 2005 show generally was very positive, a number indicated that more advance information would be helpful. For example, Hamvention will post information on traffic patterns and access points on its Web site well in advance of the 2006 show, said Assistant General Chairman Carl Rose, K8CPR, who served as security chair for Dayton Hamvention 2004 and 2005.

"We tried some things with traffic flow and vendor access in 2005, and some worked very well and others need improvement," Rose said. "We will use the feedback we received, particularly about vendor access, to see if we can make it quicker and easier to get into the arena for setup."

Rose urged Dayton Hamvention visitors to check the Web site before leaving to see if there are any last minute changes due to construction or other unforeseen events. Hamvention also will continue golf cart shuttles and benches in the flea market for the convenience of attendees, Rose said.

Some things won't change for the 55th Hamvention. Tickets prices will remain the same as the 2005 show, and so will show hours. Dayton Hamvention 2006 is expected to draw some 25,000 visitors from all over the US and around the world. The Dayton/Montgomery County Convention & Visitors Bureau has estimated Dayton Hamvention's annual economic impact at close to $4 million for Montgomery County and nearly $10 million regionally.
…ARRL Letter Dec 2005

ATV DX LIST – Join it and stay up to date!

Hello ATV operators, yes it's me again doing what I can to get ATV Dx'ing organized. Last year I started a DX listing project to help make ATV Dx'ing more productive and contacts more easily arranged.

The present DX list includes only the stations that have replied directly to me in the past but I would like to update it with as many as I can. Since it contains personal information such as phone numbers and e-mail addresses I cannot offer this information to others without your confirmation to do so.

I have received several replies from around the country and the list now has stations ready to run if the bands are open in AL,KY,IL,VA,MD,KS,OK,MO,MN,IN. Yes **it's true no Ohio ATV DX operators have officially replied to be included in the list**. Remember if you want to be included in the DX list you need to drop me a line with your information.

Many active DX operators have replied and are on the list, however many that are very active still have not so they will not be included. The list once completed will be made available to other DX operators and will be printed in ATVQ magazine. This list could increase 2-way ATV DX contacts by a large amount if used properly. Would you want to miss a great band opening just because you were a little busy and didn't have your eye on the bands?

Worse yet would you like to read about 400 or 500 mile P-5 video contacts in ATVQ a month or longer after it's all over? Don't

get me wrong, many DX contacts happen by sure luck but I know we could do better. The ATV activity logger at http://dxworld.com/atvlog.html has proven to be a great new tool but many still are not using it and some are not aware of it yet.

If you do not wish to include your e-mail or phone number the activity logger would still work for you if you will simply check it for DX activity reports. Make a post and let everyone know you're out there! Here is the info required for my National ATV DX List:

1. Call sign
2. First Name
3. Location: City or Town, State, Grid locator if known
4. Active Bands: 70cm, 33cm, 23cm, 13cm etc. Specify AM and or FM
5. Antenna: type, height, polarity
6. Power: average or ERP if known
7. Talkback frequency or monitoring frequency you use
8. Operating Hours: This should be the time you are usually around and on the air
9. Email address
10. Phone number: Do not submit number unless you are willing to accept a call from another DX operator
11. Specify the hours you would accept calls.

Collect the above information and call me at 618-242-7063, Email to ka9uvy@hotmail.com or snail mail at my QRZ address.

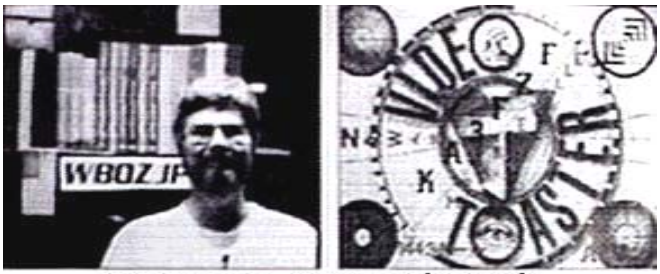
If you work DX but cannot schedule contacts, do not include your phone number but let us know you're out there so we know who to look for. Last thing if you are using the logger page at DXworld.com please make a post when you are on the air and looking for DX! If we all simply watch the page it is of no value to anyone. Let them know you're out there!

Also let's all keep on our toes, the band has been opening up better this Fall than it did all summer. Some of the really big Openings come around the holidays. A quick look at the link below might help refresh our memories.

http://www.nettekservices.com/ATV/christmas.htm (the reprint is shown below)

The Big 1994 Christmas ATV Band Opening

P5 Picture 500+ Miles
WA8ZAH Tom Cincinnati And K5YWL Osage Arkansas



P5 Picture 614+ Mile Path
New Overland Distance Record!
WB0ZJP Dave And KA3FZF Jim

Bill Brown WB8ELK c/o 73 202 North Peterborough NH 03458

ATV Christmas Present:

'Twas the night before Christmas and all through the house not a creature was stirring 'cepting me in my shack. When all of a sudden there came such a clatter, from out of the speaker came 2 meter chatter. With visions of DX dancing 'cross my eyes, I turned up my TV and was quite surprised! There were Iowa, Missouri, Illinois, and Wisconsin; Ohio, Indiana, Kentucky and PA, New York, Arkansas and Michigan too, it was certainly an ATV dream coming true! The Big Opening As some Atvers put it during the marathon band opening that began Christmas Eve and continued for three straight days, this had to be the Granddaddy of ATV band openings; conditions not seen since the great opening of Thanksgiving '86. Although contacts exceeding 2,500 miles have taken place over water (Hawaii/CA-the Great-Granddaddy of ATV openings), it's pretty rare for contacts exceeding 500 miles to take over land. These contacts took place with regularity during this opening with signal levels often approaching P5. The 2m ATV calling

frequency (144.34 Mhz) sounded like 20 meters during a rare DX pile-up. Video was flying fast and furious on 439.25 MHz over a several-state area stretching from Arkansas and Missouri all the way east to western New York State. There was a large high pressure area centered over the region that produced clear, cold weather conditions with nearly 100% humidity and no wind. Thick layers of frost settled over everything and a dense fog formed over a large portion of the Midwest. This set up an incredible tropo conditions that slowly worked itself toward the east over the next few days. Christmas Eve saw many contacts between Ohio, Michigan, Indiana, and Illinois, as well as Iowa and the west. During Christmas Day, Tom Para WA8ZAH in Cincinnati, Ohio, worked Elmo Knoch K4YWL in Osage, Arkansas, with nearly P5 pictures exchanged (a distance of 540 miles;see Photo A). The opening never seemed to die even during daylight hours and really stretched out on Monday night and into the wee hours of Tuesday morning. The most notable contacts were between Dave Williams WB0ZJP (O'Fallon, Missouri) and Jim Dallas KA3FZF (Monroeville, Pennsylvania), with P4 to P5 signals over 614+ mile path (see Photo B), and between WBOZJP and KA8VWV in Moundsville, West Virginia, (P2 levels) at 535 miles. Many ATV repeater could seen across the region; it was quite fascinating to watch the DX rolling through a repeater that was hundreds of miles away. There was even one report that Columbus, Ohio, ATCO Repeater was seen in Nashville, Tennessee. By Tuesday evening there were dozens of ATVers still active (most with cases of severe sleep-deprivation). This time contacts were made in a mostly north-south path between Michigan, Ohio, Kentucky, and Pennsylvania. I was having fun working through the WA4GSS repeater in Huntington, West Virginia. It was great to watch the local ATV gang, sending pictures through a repeater over 200 miles away (round-trip distance of 400 miles). Just before midnight a front moved through the area and the band finally slammed shut! It had been quite an adventure and once everyone catches up on their sleep I'm sure they'll be looking forward to the next big DX adventure.

Reprint of 73 Amateur Radio Today March 1995

...73, Bob KA9UVY-TV Amateur Television Station Celebrating 10 years ATV 1994-2004 DX Hotline 618-242-7063 Anytime!

QRM NEWSLETTER TIDBITS, VOLUME 29 #4 DECEMBER 2005

ACCIDENTAL INVENTION COULD LIGHT UP THE FUTURE

An accidental discovery has taken light emitting diodes (LED) lighting to a new level. Michael Bowers, a graduate student at Vanderbilt University, was trying to make really small quantum dots, which are crystals only a few nanometers big. That's less than 1/1000th the width of a human hair. Quantum dots contain anywhere from 100 to 1,000 electrons. They are easily excited bundles of energy. The smaller they are, the more excited they get. Each one in Bowers' particular batch was exceptionally small, containing only 33 to 34 atom pairs.

When you shine a light on quantum dots or apply electricity to them, they react by producing their own light, normally a bright, vibrant color. When Bowers shined a laser on his batch of dots, something unexpected happened. "I was surprised when a white glow covered the table," Bowers said. "The quantum dots were supposed to emit blue light, but instead they were giving off a beautiful white glow." Then Bowers and another student got the idea to stir the dots into polyurethane and coat a blue LED light bulb with the mix. The lumpy bulb wasn't pretty, but it produced white light similar to a regular light bulb.

The new device gives off a warm, yellowish white light that shines twice as bright and lasts 50 times longer than the standard 60-watt light bulb. This work is published in the October 18 edition of the Journal of the American Chemical Society.

DATE NARROWS FOR CLEARING 700MHz BAND

The Senate Commerce Commission has approved legislation that would, if adopted into law, force television broadcasters to vacate the 700MHz band by April 7, 2009. Meanwhile the House Energy and Commerce Committee has set December 31, 2008 as the cutoff date.

TIME IS NEAR WHEN CELLPHONES WILL REPLACE COMPUTERS

Qualcomm Chairman Irwin Jacobs says the memory and processing power in today's cell phones are the equivalent of a Pentium III computer running at 550MHz. He predicts Moore's Law will soon boost that equation to make cell— phones the personal computers of tomorrow. Jacobs thinks most major metropolitan areas of the United States will offer video on demand by the end of 2006. See the full article at: http://www.theinquirer.net/?article=26982.

MORSE RINGTONES FOR YOUR CELL
Andy B. (GB2RS) has developed a free to use online computer program to generate personalized Morse code ring tones for mobile phones. You simply enter a message; choose the ring tone's speed and pitch and press a button. A MIDI file will then be generated that you can copy to your-mobile phone. To try it, enter:
http://www.braintank.pwp.blueyonder.co.uk/midi/morse2mid php. (GB2RS)

LAPTOPS MAY BE HAZARDOUS TO YOUR HEALTH
Is your laptop a pain in the neck? If so, you're probably not alone. Anecdotal evidence *suggests* that laptop computers may be hazardous to your health. A news item on Yahoo.com reports that although no studies document the trend, doctors and physical therapists are noticing that as laptop computers become more prevalent, increasing numbers of laptop users are finding themselves plagued by persistent back, shoulder, wrist and neck aches.

Blame it on laptop keyboards and screens that are too close to each other. "When you use a laptop, you can make your head and neck comfortable or you can make your hands and arms comfortable, but it's impossible to do both," says Tom Albinof Human Factors and Ergonomics Society, a national think tank that's issued a standards report on the ergonomics of computer work stations.

With prices dropping, increased sales will likely mean more health problems. A 2002 study by the Institute of Ergonomics at Ohio State University reveals that laptop users complain of pain in more and different parts of their bodies than desktop users. The reason: desktop users can set the top of the screen at eye level and the keyboard about 20 inches below that for optimum posture.

What to do? Ergonomic experts recommend finding ways to replicate the upright and flexible posture of desktop computer users through the use of laptop accessories or options, such as wireless mice and keyboards. Some manufacturers are marketing stands designed specifically designed for laptops. Laptop maker Toshiba will be rolling out a laptop with a screen and keyboard that are two separate pieces for more flexible positioning. Looking into the future, laptops may also be equipped with laser keyboards that shine the image of a keyboard on any surface, allowing users greater flexibility. (Reproduced from September/October 2005 Office Solutions)

FCC MODIFIES DIGITAL TUNER REQUIREMENTS FOR DTV
The FCC has amended its rules to move the date on which all TV receivers must include the capability to receive digital television signals to March 1, 2007 and to apply these requirements to all television receivers, regardless of screen size. This action is intended to further the Commission's efforts to ensure that consumers are able to receive off the air digital broadcast television service as soon as possible.

ATCO SATURDAY BREAKFAST ON Dec 10.

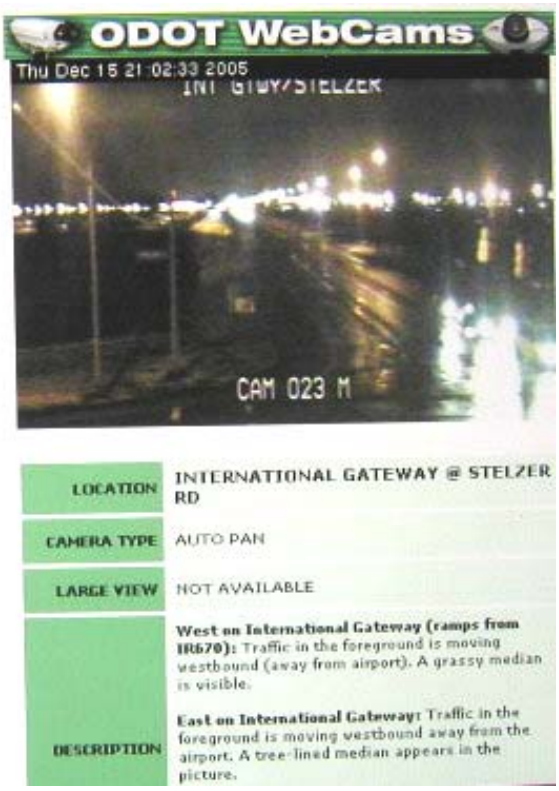
Here's proof that Columbus ATVers also know how to eat! All kidding aside, the regular Saturday breakfast gathering is a lot of fun. And remember, those that **do not** attend get talked about. So if you want the gossip to be about someone else, listen for the Saturday meeting place location announced on 147.45 each Wednesday or Thursday and show up at the selected location on Saturday. Be prompt! The 9:00 AM breakfast starts at 8:30.

…WA8RMC

ODOT web cam in Columbus.

I found the URL's for most of the traffic web cams positioned at various locations in the Columbus, Ohio area. (Actually you can see any of the cams in the entire state of Ohio). Just enter the URL below and select the city and location of your choice. The camera pictures are updated about every 10 seconds or so. Neat Huh? The picture below and right is a night view of camera 023 located at 161 and Steltzer roads.
…WA8RMC

http://www.buckeyetraffic.org/webcams/nosvg/?rfr=nwsl



HARRISBURG, PA ATV ACTIVITY REPORT

This is a report of the Harrisburg, PA area ATV activity. It's interesting due to the fact it's a 3 gig output and they are using 10 gig as well as 1.2 gig input. They are currently able to link the York, Pa and Lancaster repeaters together. The Harrisburg repeater is only a few years old.
…John W3SST

ATV Report December 2005

A camera, that was a gift of AA3BJ, Tim Barefoot, of York, was installed on Blue Mountain at the White House and connected to the 3420 Mhz transmitter. It is a "BULLET WATER PROOF COLOR CAMERA PC221-HR made in Korea. Anyone entering the building and all traffic by the White House can easily be seen. The multiburst test pattern will only be used on an as needed basis.

At White Rock, the FTA satellite receiver for NASA failed. A local camera was hooked up temporarily in its place. The backup NASA receiver did not work as advertised. A replacement is on the way. The 35 amp power supply quit while observing the NASA receiver. The internal fan failed causing a thermal shut down of the MFJ4035MV supply. This is still under warranty. Fortunately a 55 amp supply that was donated by AA3BJ, Tim Barefoot, was in the rack, ready for service. The wires from the 3480 MHz transmitter fit nicely on the new power supply. The 3480 MHz transmit antenna will be replaced in a few weeks, weather permitting. The 11 dBd omni antenna, special order high power Polyphaser, and tower mount should all be here this week.

Gary Hammaker, KB3EJZ, and Jim Daly, N8JSO, are now receiving 3420 Mhz at WITF and White Rock on 3480 Mhz respectively. In a few weeks Bob Marzari, W3PT, Alan Abt, K3SZX, and Dave Costanza, KA3PNV, should all be receiving 3420 Mhz. The LNB's should be here tomorrow and the PICO receivers are all tested and ready to go.

The Nov 22, 2005 ATV Conference was held at Sunnyside Restaurant in Carlisle. About a dozen hams attended. The audio on the Videolynx transmitter was discussed. Ravi has since increased the deviation to 50 Khz and increased the gain so that a level closer to mic level is needed instead of line level. This modification is available to all Videolynx users by returning the transmitter to Ravi along with $40. The low cost 1.2 Ghz transmitters still have not been evaluated. They do not appear to be satisfactory. 3480 Mhz receive at WITF does not appear to be practical. The 10 Ghz link appears to be the best solution. The SMRA net on Monday at 9:00 PM will be on ATV where available. The Tuesday net will restart when the York repeater is back on the air. Trinity High School may be interested in transmitting in the near future. The next meeting will be in the Spring.
…W3SST

DTV PLAN INCLUDES SET-TOP SUBSIDY

The House voted Sunday (Dec. 18) to establish a 2009 deadline for ending U.S. analog broadcasting and the start of all-digital TV services.

The Feb. 18, 2009, transition date was part of a massive budget reconciliation bill approved over the weekend in the House. The bill passed by a vote of 216-206.

The House bill authorizes the National Telecommunications and Information Administration to launch a "digital-to-analog converter box program" to allow viewers without DTV receivers to continue receiving broadcast signals. The bill allocates up to $990 million for the program, which would allow U.S. households to obtain up to two, $40 converter-box coupons.

The measure was initially approved by the House Energy and Commerce Committee. Panel Chairman Joe Barton, R-Texas, said in a statement that "the DTV legislation brings needed certainty to allow consumers, broadcasters, cable and satellite operators, manufacturers, retailers, and government to prepare for the end of the transition."

The Senate voted last month to set April 7, 2009, as the deadline for U.S. broadcasters to switch to digital broadcasts. Lawmakers want to use unused analog TV spectrum for broadband wireless and public-safety applications.

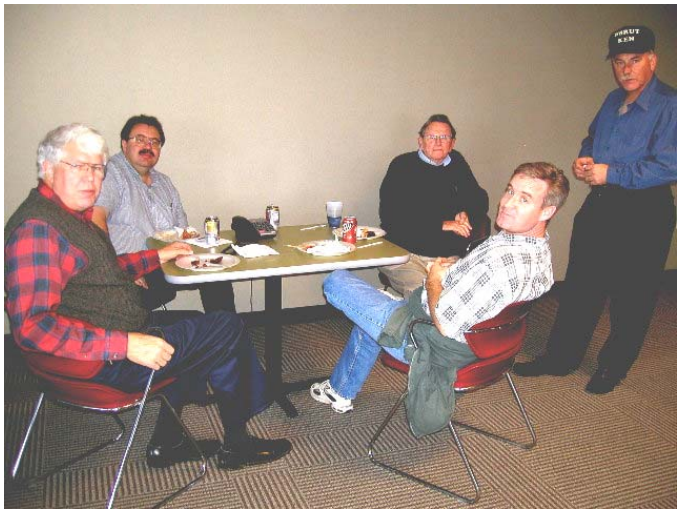
Spectrum auctions associated with the reclaimed spectrum are expected to generate an estimated $10 billion in revenues.

The bill also includes up to $1 billion in grants to help public-safety agencies obtain and deploy interoperable communications. Recent hurricane disaster relief efforts illustrated how the lack of interoperable communications hampered rescue efforts.

FALL EVENT, 2005

Ahh! What a great time of the year…The annual Fall Event where we are able to get together, share lies, exchange items, eat lunch and just generally enjoy each others company. Even though we "see" each other on a regular basis on ATV, it's nice to be able to discuss things in person. This fall we met at the new ABB cafeteria which was well appreciated. The weather outside was very windy and rainy. What a step up from the old shelter house days where we often brought wood for the fireplace. Thanks Ken, W8RUT, for allowing us the privilege of such wonderful accommodations. I counted 34 people but could have missed a few because of some latecomers and a couple that left early. The pictures below illustrate my point.

A special thanks go to Jeff, K8TPY's wife, Dianna, K8TRP, who helped prepare the food. The bottom right picture shows her hard at work. Also, John, W3SSTs wife brought well appreciated brownies.



THE ADVANTAGES AND DISADVANTAGES OF THE FOUR MAIN TV TECHNOLOGIES – CRT, LCD, PLASMA AND RPTV

Andrew Murray **Director, Displays Research Europe, iSuppli Corporation Abstract**

This paper considers the advantages and disadvantages of the four main tv technologies – CRT, LCD, plasma and rear projection TV (RPTV). The paper also discusses which technology is likely to dominate which sectors of the TV market.

1. Introduction

Since the invention of television the market has been totally dominated by CRT technology. Recently this situation has started to change and three new technologies – LCD, plasma and micro-display rear projection tv have emerged to challenge the dominance of CRT TV. Each technology will now be considered in detail.

2. CRT Television

CRT is still the dominant TV technology. In 2005 the total TV market will be 175.5 million sets of which 151.5 million will be CRT TV's. Nevertheless in the mature markets of Europe, USA and Japan CRT TV is rapidly losing market share to LCD, plasma and micro-display RPTV technologies. However the decline in demand in these mature markets is being offset to a large extent by the growth in demand from emerging markets, including countries with very large populations such as China, India and Brazil. CRT TV still offers the best price: performance ratio of any TV technology. It suffers because of its bulky form factor, consumers are increasingly attracted to the slimmer style of both LCD and plasma TV's. As demand in the mature markets continues to decline so an increasing number of well known branded manufacturers will outsource CRT TV production to specialist TV OEM's and ODM's. Chinese OEM's and ODM's will be the main beneficiaries from this trend. In an attempt to offset this decline in demand some companies, notably Samsung and LG, have developed a thin tube CRT TV which reduces the depth of a 32 inch CRT TV from 60 cm to almost half. Whether this will be sufficient to stem the rate of decline in demand for CRT TV's in Europe, USA and Japan remains to be seen.

3. LCD TV

The greatest challenge to CRT TV technology will come from LCD TV. The gen. 6, gen. 7 LCD fabs and beyond that are currently under construction or planned in Japan, Taiwan and Korea are targeting the TV market. This rapid increase in supply will be accompanied by equally rapid falls in price which will make LCD TV more affordable for more consumers. The slim, attractive form factor is the main advantage for LCD over CRT. This is a key advantage in Japan where space in many homes is at a premium and the smaller footprint of the LCD TV is a major benefit. LCD is already taking considerable market share at the 20 inch and below size segment of the market. Within two years LCD will be price competitive in all up to, and including 37 inches. LCD TV's larger than 40, even 50 inches are already available but it will be a few years yet before they are price competitive with plasma and RPTV's. In terms of the actual picture quality LCD TV still has room for improvement and many companies have development programs ongoing to improve the viewing angle, image processing and backlighting.

4. Plasma TV.

Of the new TV technologies Plasma has been around for the longest time. When consumers talk of "hang on the wall TV" they are usually referring to plasma TV, although hanging a 42 inch plasma TV on a wall is neither easy nor very practical. Plasma TV has been the main competitor to CRT TV in the 32 and 37 inch size segment of the market. However with the recent advances in LCD manufacturing and the associated price reductions LCD is now competing very effectively in this area of the market. As a result only a small number of companies still offer 32 inch plasma TV's. Most companies are now focusing their marketing efforts on 37 and 42 inch + plasma TV products. Within the next 1 – 2 years the 37 inch plasma TV market will come under increasing threat from LCD TV. In the larger size market the threat to plasma technology will come from the new micro-display rear projection TV's.

5 Rear-Projection Television.

Rear-Projection TV (RPTV) is specifically focused on the large size TV market – 45+ inches. To date the CRT RPTV technology has been very popular in the USA where there is a very clear preference for large sized TV's. China is the second largest market for such large TV's. Europe has never been a large market for CRT RPTV simply because the units are considered to be too bulky for most people's living rooms. However Europe is starting to adopt the new micro-display based RPTV sets incorporating LCD, DLP or LCoS projection technology. The reasons behind this change are that the new micro-display RPTV's have a much thinner form factor than CRT RPTV and the pricing is very competitive against similar sized plasma TVs. In the USA and China CRT RPTV will continue to dominate in the near term because of its price advantage over the micro-display RPTV. As this price gap narrows, as it will rapidly, so micro-display RPTV will quickly become the dominant product in the RPTV market.

6. Conclusions.
There will not be one winner or a loser in the TV market. The TV market is large enough and sufficiently diverse to allow all technologies to survive. There is no one perfect TV display technology. CRT still offers the best picture quality but has a bulky form factor. LCD and plasma have very slim and attractive designs but are expensive and need improvement in certain areas of their performance. There is also one additional factor that is very difficult, if not impossible, to define. At the end of a full and complete technical analysis of the pros and cons of each TV technology there still remains the small matter of personal preference which is a key factor in the final decision making process.

7. References
[1] iSuppli Corporation, EMEA TV market quarterly report and forecast database.
[2] iSuppli Corporation, Global TV market quarterly report and forecast database. *204 • EuroDisplay 2005*

…The paper contained in this proceeding is from the Twenty-Fifth International Display Research Conference held at the Edinburgh International Conference Centre on 20–22 September 2005 in Edinburgh, Scotland.

THE DISCOVERY OF THE HEAVIEST ELEMENT YET KNOWN

Atomic physists discovered this element strictly by accident.

Recently hurricanes and gasoline issues are proof that it does exist. A major research institution has recently announced the discovery of the heaviest element yet known to science. The new element has been named, **"Governmentium".**

Governmentium (Gv) has one neutron, 25 assistant neutrons, 88 deputy neutrons, and 198 assistant deputy neutrons, giving it an atomic mass of 312. These 312 particles are held together by forces called morons, which are surrounded by vast quantities of lepton-like particles called "Peons."

Since Governmentium has no electrons, it is inert. However, it can be detected, because it impedes every reaction with which it comes into contact. A minute amount of Governmentium causes one reaction to take over four days to complete, normally take less than a "micro-second."

Governmentium has a normal half-life of 4 years; it does not decay, but instead undergoes a reorganization in which a portion of the assistant neutrons and deputy neutrons exchange places. In fact, Governmentium's mass will actually increase over time, since each reorganization will cause more morons to become neutrons, forming, "Isodopes."

This characteristic of moron promotion leads some scientists to believe that Governmentium is formed whenever morons reach a certain quantity n concentration. This hypothetical quantity is referred to as a "Critical Morass."

When catalyzed with money, Governmentium becomes Administratium – an element which radiates just as much energy as Governmentium since it has half as many peons, but twice as many morons. Remember, its called, "Administratium."
,,,W8DMR

LEAP SECOND DETAILS – Better check and reset your clocks!

Leap second to be introduced as New Year arrives: The International Earth Rotation and Reference Systems Service (IERS) have announced the introduction of a "time step" at the end of December to add a "leap second" as 2006 arrives. Leap seconds are needed to keep clocks in step with Earth's rotation, which varies by several thousandths of a second per day. Slowing down the clocks every year or two keeps them in sync. As 2005 transitions to 2006, Coordinated Universal Time (UTC) will be retarded by 1.0 second. This essentially means that the last minute in 2005 will be 61 seconds long: December 31, 2005, 23:59:59; December 31, 2005, 23:59:60; January 1, 2006, 00:00:00. This adjustment will affect UTC and all time scales based on UTC. Loran-C and GPS will not be adjusted physically, however. Times of Coincidence for LORAN-C are available on the Time Service Web Page. For GPS, the leap second correction, contained within the UTC data of the navigation message transmitted by satellites, will change. After the leap second GPS will be ahead of UTC by 14 seconds.
…The ARRL LetterVol. 24, No. 50 December 23, 2005

ATV DX RECORDS ON FILE AT P.C. ELECTRONICS

I started an ATV DX Record web site: http://www.hamtv.com/atvdxrecord.html I often get asked the question of how far ATV can go or what the record is. Rather than point them to check past issues of ATVQ and Bob, KA9UVY's Midwest ATV DX Report and other articles and magazines, I thought it would be good to have it all on one web page with all the pertinent information. There are just a few to start right now and I hope the word will get out and I hear from those who have beaten the listings or have ones to add. The categories for now will be by ham band, overland, over water, rocket and balloon, AM or FM analog standard scan ATV. There is also a link to a USDS web site that has a good over the earth distance calculator if you enter the latitudes and longitudes of the two stations. Merry Christmas and best DX in the New Year,
…Tom W6ORG P. C. Electronics www.hamtv.com

Below are the recorded ATV DX records by band. Last update Dec. 21, 2005. To qualify, the transmission must be simplex analog standard scan (NTSC, PAL or SECAM - no repeater, SSTV, digital or other modes) AM or FM, and a photo of the receiving stations TV screen in which the call letters of the transmitting station can plainly be seen.

DX records will be listed by band for over land transmissions, over water, balloon or rocket separately. Information to qualify must include the transmitting stations call sign, location, latitude/longitude, transmitter power, antenna type and polarity, video carrier frequency, AM or FM, time, date, receiving stations call sign, location, latitude/longitude, photo off the TV screen at the receive site plus any other details or notes that may be of interest

You can check the distance by entering the latitude and longitudes for the two locations at the USDS web site. You can find your latitude and longitude with a GPS receiver or possibly your license QTH listed at the QRZ call sign lookup by clicking on details. The Hepburn tropo ducting forecast maps are a good source to see what might be possible for your area - scroll down and click on the maps for your area of the world.

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70 cm Band

2518 miles over water, July 11, 1994, AM on 434.0 MHz. Transmitted by Paul Leib, KH6HME at the Mauna Loa Volcano Hawaii to Mike Henkowski, KC6CCC in San Clemente, California USA. P. C. Electronics RTX70-1 driving a Mirage D100N-ATV repeater amp, 100 watts to quad 14 element beams, vertically polarized. Receive with a 14 element beam to a P. C. Electronics TVC-4G downconverter. First contact was with Gordon West, WB6NOA, in Costa Mesa, CA and he put the word out to other ATVers in the area.

643 miles over land in the summer of 1990, AM on 439.25 MHz. 400 watts from a homebrew 8938 amp transmitted by Ron Stefanskie, W9ZIH in Malta, IL to Rick Vidmar K9KK in Oklahoma City OK, USA. Antennas were horizontally polarized, quad K2RIW 25 element beams at W9ZIH and K9KK was using a pair of M2 18 element yagi's. Rick was running 300 watts out of a Henry 2004-A amp. Initial contact was on 40 meters when they decided to try 432 SSB. Signals were so strong they switched to ATV.

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23 cm Band

252 miles over land, July 23, 2005 FM on 1280 MHz. Ron Stefanski, W9ZIH in Malta IL transmitting home brew 300 watts with quad 55 element Loop Yagi's to Bob Delaney, KA9UVY in Mt. Vernon IL, USA. Bob has a single 55 element Loop Yagi and runs 20 watts.

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13 cm Band

108 miles over land, FM on 2415 MHz Dec. 18, 2005. 20 W to a 22 dBi dish horizontally polarized transmitted by Jack Swart, VK2TRF south of Mt. Warrwawolong to Jonathon Berry, VK2TAS at Mt. Gibralter Australia. Johnathon Berry transmitted with 25 watts to a 22 dBi dish.

NEW MEMBER(S)

Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are our group's lifeblood. It's important that we actively recruit new faces aggressively.
KA8LWR Mel Alberty, Bucyrus, Ohio
AE6QU Dave Phillips, Sun City, Az.

…WA8RMC

HAMFEST CALENDAR

This section is reserved for upcoming hamfests. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here, notify me so it can be corrected. This list will be amended, as further information becomes available. WA8RMC.

14 Jan 2006* 20th Annual Southwest Ohio Digital Symposium Dial Amateur Radio Club http://www.swohdigi.org/ **Talk-In:** 146.61, 224.96, & 444.825 Middletown, OH Miami University, Middletown Campus 4200 North University Blvd.

15 Jan 2006+ Scarfest 2006 Sunday Creek Amateur Radio Federation http://www.scarfclub.org **Talk-In:** 147.225; 147.150 Nelsonville, OH Tri-County Joint Vocational School 15676 State Route 691

29 Jan 2006+ Tusco Amateur Radio Club http://noard.com/tuscoarc.htm **Talk-In:** 146.730 - (PL 71.9) Strasburg, OH Wallick Auction House 965 North Wooster Avenue **Div:** Great Lakes

12 Feb 2006+ Mansfield Mid*Winter Hamfest and Computer Show InterCity Amateur Radio Club http://www.iarc.ws **Talk-In:** 146.94 - (PL 71.9) Mansfield, OH Richland County Fairgrounds 750 North Home Road

26 Mar 2006+ Lake County Amateur Radio Association http://www.lcara.org **Talk-In:** 147.21 (PL 110.9) Madison, OH Madison High School 3100 Burns Road

2 Apr 2006+ 52nd Annual Hamfest/Electronics & Computer Show Cuyahoga Falls Amateur Radio Club http://www.cfarc.org/hamfest2006.htm **Talk-In:** 147.27 Cuyahoga Falls, OH Emidio & Sons Party Center 48 East Bath Road

LOCAL HAM CLUB LISTING

Central Ohio ARES (COARES)
Rich Jordan, AA8DN – President
e-mail: aa8dn@arrl.net
Web Site: http://www.qsl.net/coares/

Hocking Valley ARC
Mel Myers AA8BJ – President
Sunday Creek Amateur Radio Federation
Russel Ellis N8MWK – President

Rusty Zipper HF & DX Contest Club
Contact Name: Mark Harvill
e-mail: na8kd@qsl.net or kg8dp@aarl.net
Web Site: http://www.qsl.net/na8kd

Delaware Amateur Radio Association (DELARA)
Bob Brown, W8BOB, President
160 Curly Smart Circle, Delaware, OH 43015
e-mail: bobb@midohio.net

Capital City Repeater Association (CCRA)
Ned Raybould, N8OIF, Secretary
e-mail: ccra@qsl.net
Web Site: http://www.qsl.net/ccra

Central Ohio Radio Club (CORC)
Joe Hahn, W8NBA, Membership Chairman
e-mail: membership@corc.us
Wed Site: http://www.qsl.net/corc

Lancaster & Fairfield County ARC
Charlie Snoke – President
(740) 653-9092 e-mail: k8qik@qsl.net
Web Site: http://www.qsl.net/k8qik

Columbus QRP Club (CQRP)
Web Site: **http://www.qsl.net/cqrp**

Central Ohio Severe Weather Network
John Montgomery, N8PVC, President (614-231-0590)
e-mail N8WX@severe-weather.org
Web Site: www.severe-weather.org

INTERNET ATV HOME PAGES (list verified10/21/05)

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. Most addresses listed below are case sensitive, so type exactly as shown.

Domestic homepages

http://www.atco.tv	Ohio, Columbus, homepage (ATCO)
http://www.hamvention.org/dara/atv/atvresources.html	Ohio, Dayton ATV group (DARA)
http://www.citynight.com/atv	California, San Francisco ATV
http://www.qsl.net/atn	California, Amateur Television Network in Central / Southern
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
http://www.kcatv.org	Kansas, Kansas City Amateur TV Group (KCATVG**)**
www.bratsatv.org.	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=10991	Michigan, Detroit Amateur Television System (DATS)
http://come.to/amateurtv.mn	Minnesota Fast Scan Amateur Television (MNFAT)
http://www.qsl.net/kd2bd/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
http://www.oregonatv.org	Oregon, Portland OATVA Oregon Amateur TV Association
http://www.jones-	Oregon, Southern Oregon ATV
http://www.nettekservices.com/ATV/	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat	Pennsylvania, Phila. Area ATV
http://www.hats.stevens.com	Texas, Houston ATV (HATS)
http://www.hotarc.org/atv.html	Texas, WACO Amateur TV Society (WATS)
http://www.hamtv.org/	Texas, North Texas ATV
http://www.ussc.com/~uarc/utah_atv/utah_atv.html	Utah ATV
http://www.qsl.net/w7twu	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://lea.hamradio.si/~s51kq/	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.org.uk/index.htm	British ATV club (BATC)
http://www.gpfn.sk.ca/hobbies/rara/atv3.html	Regina, Canada ATV
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
http://oh3tr.ele.tut.fi/english/atvindex.html	Finland ATV, OH3TR repeater.
http://www.darc.de/distrikte/g/T_ATV/atv.htm	German ATV

TUESDAY NITE NET ON 147.45 MHz SIMPLEX

Every Tuesday night @ 9:00PM WA8RMC hosts a net for the purpose of ATV topic discussion. There is no need to belong to the club to participate, only a genuine interest in ATV. All are invited. For those who check in, the general rules are as follows: Out-of-town and video check-ins have priority. A list of available check-ins is taken first then a roundtable discussion is hosted by WA8RMC. After all participants have been heard, WA8RMC will give status and news if any. Then a second round follows with periodic checks for late check-ins. We rarely chat for more than an hour so please join us if you can.

ATCO REPEATER TECHNICAL DATA SUMMARY

Location: Downtown Columbus, Ohio
Coordinates: 82 degrees 59 minutes 53 seconds (longitude) 39 degrees 57 minutes 45 seconds (latitude)
Elevation: 630 feet above average street level (1460 feet above sea level)
Transmitters: 427.25 MHz AM modulation, 1250 MHz FM modulation, 1260 MHz QPSK digital, 2433 MHz FM modulation and 10.350 GHz FM modulation
Interdigital filters in output line of 427.25, 1250 & 2433 transmitters
Output Power - 427.25 MHz :40 watts average 80 watts sync tip
1250 MHz: 50 watts continuous (Analog ATV)
1260 MHz 2 watts continuous (DVB-S digital ATV 2 channels)
2433 MHz: 15 watts continuous
10.350 GHz 1 watt continuous
Link transmitter - 446.350 MHz 5 watts NBFM 5 kHz audio
Identification: 427, 1250, 1260, 2433, 10.35 GHz xmitters video identify every 30 min. with ATCO & WR8ATV on 4 different screens
1260 MHz - Continuous transmission of ATCO & WR8ATV with no input signal present
Transmit antennas: 427.25 MHz - Dual slot horizontally polarized "omni" 7 dBd gain major lobe east/west, 5dBd gain north/south
1250 MHz - Diamond vertically polarized 12 dBd gain omni (Analog ATV)
1260 MHz - Diamond vertically polarized 12 dBd gain omni (Digital DVB-S ATV)
2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
10.350 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni
Receivers: 147.45 MHz - F1 audio input control of touch tones
439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
915 MHz - F5 video link data from remote sites
1280 MHz - F5 video input or DTV-S digital (digital input fed direct to 1260 MHz digital output channel 2)
2398 MHz - F5 video input
10.350 GHz - F5 video input (future – not installed yet)
Receive antennas: 147.45 MHz - Vert. polar. Hi Gain 12 dBd dual band (also used for 446.350 MHz output)
439.25 MHz - Horiz. polar. dual slot 7 dBd gain major lobe west
915 MHz - Diamond vertically polarized 12 dBd gain omni
1280 MHz - Diamond vertically polarized 13 dBd gain omni
2398 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
10.450 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni (not installed yet)

Input control:

Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
00*	turn transmitters **on** (enter manual mode-keeps xmitters on till 00# sequence is pressed)
264	Select Channel 4 Doppler radar. (Stays up for 5 minutes) Select # to shut down before timeout.
697	Select Time Warner radar. (Stays up till turned off). Select # to shut down.

Manual mode functions:

00* then 1 Ch. 1	Select 439.25 receiver - manual mode (hit 00* then 1 to view 439.25 signal only)
00* then 2 Ch. 2	Select 915 receiver - manual mode
00* then 3 Ch. 3	Select 1280 receiver - manual mode
00* then 4 Ch. 4	Select 2411 receiver - manual mode
00* then 5 Ch. 5	Select video ID - manual mode (the 4 identification screens)
01* or 01#	Channel 1 439.25 MHz scan enable (hit 01* to scan this channel & 01# to disable it)
02* or 02#	Channel 2 915 MHz scan enable
03* or 03#	Channel 3 1280 MHz scan enable
04* or 04#	Channel 4 2398 MHz & camera video scan enable
A1* or A1#	Manual mode select of 439.25 receiver audio
A2* or A2#	Manual mode select of 915 receiver audio
A3* or A3#	Manual mode select of 1280 receiver audio
A4* or A4#	Manual mode select of 2398 receiver audio
C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
C1* or C1#	1280 analog/ digital select. Hit C1* for digital. Hit C1# for analog.
C2* or C2#	2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)

Auto scan mode functions:

001	2398 receiver (normal mode - returns to auto scan)
002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
003	Equipt. room camera (select 001 when finished so repeater will shut down**)**

ATCO MEMBERS AS OF JANUARY 10, 2006

Call	Name	Address	City	St	Zip
KD8ACU	Robert Vieth	3180 North Star Rd	Upper Arlington	OH	43221
K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	OH	43068
KC3AM	David Stepnowski	735 Birchtree Lane	Claymont	DE	19703-1604
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	OH	43026
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224
W6CDR	Wynn Rollert	1141 Pursell Ave	Dayton	OH	45420
WB8CJW	Dale & Sharon Elshoff	8904 Winoak Pl	Powell	OH	43065
N3DC	William Thompson	6327 Kilmer St	Cheverly	MD	20785
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616
WA3DTO	Rick White	308 Orial Ct	Evans City	PA	16033
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026
KC8EVR	Lester Broadie	108 N Burgess	Columbus	OH	43204
KB8FLY	Rod Shaner	124 West Walnut St.	Lancaster	OH	43130-4344
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147
W8GUC	Reuben Meeks	1345 Helke Rd	Vandalia	OH	45377
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026
WG8I	Chris Vojsak Sr,	3536 W Henderson Rd	Columbus	OH	43220-2232
N8IJ	Dick Knowles	1915 Tamarack Circle S.	Columbus	OH	43229
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207
W8KHW	Kevin Walsh	2396 Anson St	Columbus	OH	43220
K4KLT, KD4ODQ	Bob & JoAnnSchmauss	P.O. Box 1547	Land O' Lakes	FL	34639-1547
N8KQN	Ted Post	1267 Richter Rd	Columbus	OH	43223
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	OH	45331
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	PA	17603-9563
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	OH	43123
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334
WB2LTS	Manny Diaz	74 Lincoln Rd	Medford	NY	11763
KA8LWR	Mel Alberty	1645 Olentangy Road	Bucyrus	OH	44820
W8MA	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081
WD8MDI	Dave Mathews	2404 Hoose Drive	Grove City	OH	43123
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660
WB8MMR	Mike Knies	1715 Winding Hollow Dr.	Columbus	OH	43223
K4NQV	Dean Maggard	1612 Benson Ave	Bowling Green	KY	42104
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068
WU8O	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064
N8OCQ	Bob Hodge Sr.	3584Bluff Gap Dr.	Grove City	OH	43123
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410
N8OPB	Chris Huhn	1667 Pickering Court	Reynoldsburg	OH	43068
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537
W2OTA,WA2DTZ	Michael Chirillo	942 Bruce Drive	Wantagh	NY	11793
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	OH	43228
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	OH	43154
WB8PJZ	Dave Morris	12025 Wapak-Buckland Rd	Wapakoneta	OH	45895
AE6QU	Ron Phillips	10858 W. Kaibab Dr.	Sun City	AZ	85373
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	OH	43081
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	OH	43110
W8RRJ	John Hull	580 E. Walnut St.	Westerville	OH	43081
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	OH	43224
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	OH	43617
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	OH	43119
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904
W8RXX,KA8IWB	John & Laura Perone	3477 Africa Road	Galena	OH	43021
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	OH	43119
W8SJV, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015
N8SNG	Terry Rankin	414 Walnut Street	Findlay	OH	45840
KB8SSH	Mike Cotts	3424 Homecroft Dr	Columbus	OH	43224
W3SST	John Shaffer	1635 Haft Dr.	Reynoldsburg	OH	43068
K8TPY, K8FRB	Jeff & Dianna Patton	3886 Agler Road	Columbus	OH	43219
NR8TV	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123
KC8UQS	David Dominy	7017 Taway Road	Radnor	OH	43066
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	OH	43338
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	OH	43162
KB8UWI	Milton McFarland	115 N. Walnut St.	New Castle	PA	16101
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011

Call	Name	Address	City	St	Zip
N8XYZ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230
N5XZS	Tim Johnson	1629 Speakman Dr SE	Albuquerque	NM	87123
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	OH	43223
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064
KC8YPD	Joe Ebright	3497 Ontario St	Columbus	OH	43224
N8YHY	Chris Scott	11981 Maple Trail	Hillsboro	OH	45133
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	OH	43229
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are $10.00 per person payable on January 1 of each year. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost.

The membership period is from January 1ST to December 31ST. New Members will receive all ATCO newsletters published during the current year prior to the date they join ATCO. For example, a new member joining in June will receive the January and April issues in addition to the July and October issues. As an option for those joining after mid July, they can elect to receive a complementary October issue with the membership commencing the following year Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT
Secretary: Frank Amore WA8HFK
Corporate trustees: Same as officers

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: Frank Amore WA8HFK
Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL ○ NEW MEMBER ○ DATE _____
CALL _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES ○ NO ○
HOME PHONE _____
NAME_____
INTERNET Email ADDRESS_____
ADDRESS _____
CITY _____ STATE _____ ZIP _____-_____
FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY
_____
___
COMMENTS_____
_____
_____
ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK ○ MONEY ORDER ○
Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, pay dues via the Internet with your credit card. Go to **www.atco.tv/paydues** and fill out the form. Payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no PayPal involvement.

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (10/21/05)..... $ 1917.41
RECEIPTS(dues)..... $ 260.00
Newsletter postage for October..... $ (45.00)
Pizza party food..... $ (151.05)
Fall Event food..... $ (224.99)
Paypal charges..... $ (0.92)
CLOSING BALANCE (10/21/05)..... $ 1755.45

ATCO Newsletter
c/o Art Towslee-WA8RMC
180 Fairdale Ave
Westerville, Ohio 43081

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK THE RIGHT CORNER OF THE MAILING LABEL FOR THE EXPIRATION DATE.
SEND N8NT A CHECK IF EXPIRED.